OPTIMIZATION OF WATER AND FERTILIZER USE FOR MAJOR CROPS (UZB/5/002)

D1 New

MODEL PROJECT

CORE FINANCING

YEAR	Experts		Group Activity	Equipment	Fellowships		Scientific Visits		Group Training	Sub-Contracts	Misc. Comp.	TOTAL
	m/d	US $	US $	US $	m/d	US $	m/d	US $	US $	US $	US $	US $
1999	1.0	14,700	0	50,000	3/0	10,350	1/0	10,800	0	0	0	85,850
2000	1.0	15,450	0	85,000	6/0	21,600	1/0	11,400	0	0	0	133,450

First Year Approved: 1999

OBJECTIVES: To optimize the use of water and fertilizer for cotton and winter wheat in Uzbekistan under different soil conditions.

BACKGROUND: Uzbekistan's economy is heavily dependent on agriculture. The vast irrigation system for cotton monoculture, with its improper water management practices and fertilizer use over the years, has adversely affected the environment. The Aral Sea, which is a large inland body of water with socio-economic and ecological importance for the region, has lost nearly two thirds of its volume and half of its surface area due to excessive diversion of water for irrigation from the rivers draining into it. The salinity of the sea has more than doubled and the receding water has exposed a dry bed which is thick with salt and agricultural residue. It is therefore essential for the country to begin optimizing the use of water and fertilizer for the major crops of Uzbekistan, cotton and winter wheat. The country has assigned this task to the Uzbek National Cotton Growing Research Institute (UNCGRI), which is the co-ordinating centre for R&D in this field. The facilities of UNCRGI make it an ideal choice for tackling this problem since it not only has the necessary R&D capabilities, but also provides extension services through its 11 regional branches and its headquarters in Tashkent. UNCGRI also collaborates with many research institutes belonging to the Scientific Production Centre of Agriculture and other relevant institutes in the country. The result of the optimization work should, therefore, be readily available to the end users.

PROJECT PLAN: The first field experiments with cotton/winter wheat rotation will be initiated in the spring of 1999. UNCGRI will carry out water balance assessment and N-fertilizer recovery evaluation. In order to carry out this work, provisions for the early procurement of N-15 labelled fertilizers and soil moisture neutron probes have been made. Later, under the project, the Agency plans to provide UNCGRI with an optical emission spectrometer. Throughout the project, the Agency's Laboratories at Seibersdorf will provide services for the analysis of total N and N-15 in plant/soil samples. Further adjustment of the project plan will be carried out on the basis of the initial results obtained and consultations with the relevant authorities in Uzbekistan.

NATIONAL COMMITMENT: The facilities of UNCGRI in Tashkent and its 11 regional branches, as well as its four experimental state farms; the total sowing area belonging to UNCGRI (over 15,000 ha); six scientists, two researchers, two laboratory assistants and two technicians; equipment, including neutron moisture gauges, gravimetric soil moisture probes, tensiometers, facilities for the chemical analysis of plant and soil samples, and consumables; vehicles needed for field work.

AGENCY INPUT: Expert services and training in water balance calculation, N-15 fertilizer, neutron probes and other equipment.

PROJECT IMPACT: Economy in the use of water and fertilizer for the two major crops in Uzbekistan will help reduce environmental damage. In the long run, it could contribute positively to the international efforts to restore the ecological balance in the Aral Sea region.